Sacramento Regional County Sanitation District

Comments on SWRCB Draft Order Regarding NPDES Permit for the Sacramento Regional Wastewater Treatment Plant

July 18, 2012

Opening Remarks

General Policy Considerations

Major Problems with Filtration & Disinfection Logic

1. Basin Plan standard exists
2. Reliance on narrative Water Quality Objectives that don’t exist
3. Dilution ratio guidance misused
4. Wrong risk analysis numbers cited
5. Improper dismissal of Porter-Cologne Act

Pathogens / Disinfection

Why 2.2 MPN, not 23 MPN?

CUWA Human Health Issue Paper Comment

“While pathogens are not currently impacting drinking water quality/treatment, an increased load of pathogens may adversely impact the beneficial use. **We recommend that disinfection requirements remain the same for existing flows** but additional treatment be required to reduce protozoans below illness dosage in the near field for the increased flows to 218 million gallons per day (mgd).”

- California Urban Water Agencies, Letter to K. Harder, *Comments on Issue Paper on NPDES Permit Renewal Issues Drinking Water Supply and Public Health for the Sacramento Regional Wastewater Treatment Plant,* February 1, 2010, page 2

Pathogens / Disinfection

Why 2.2 MPN, not 23 MPN?

Basin Plan Rec-1 WQO

"In waters designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period **shall not exceed a geometric mean of 200/100 ml**, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml."

- Water Quality Control Plan for the Sacramento River and San Joaquin River Basin, Fourth Edition
October 2007

Findings in Permit Adopted Jan. 2010

"In a letter to the Regional Water Board dated 8 April 1999, DPH indicated it would consider wastewater discharged to **water bodies with identified beneficial uses of irrigation or contact recreation and where the wastewater receives dilution of more than 20:1 to be adequately disinfected if the effluent coliform concentration does not exceed 23 MPN/100 mL…**"

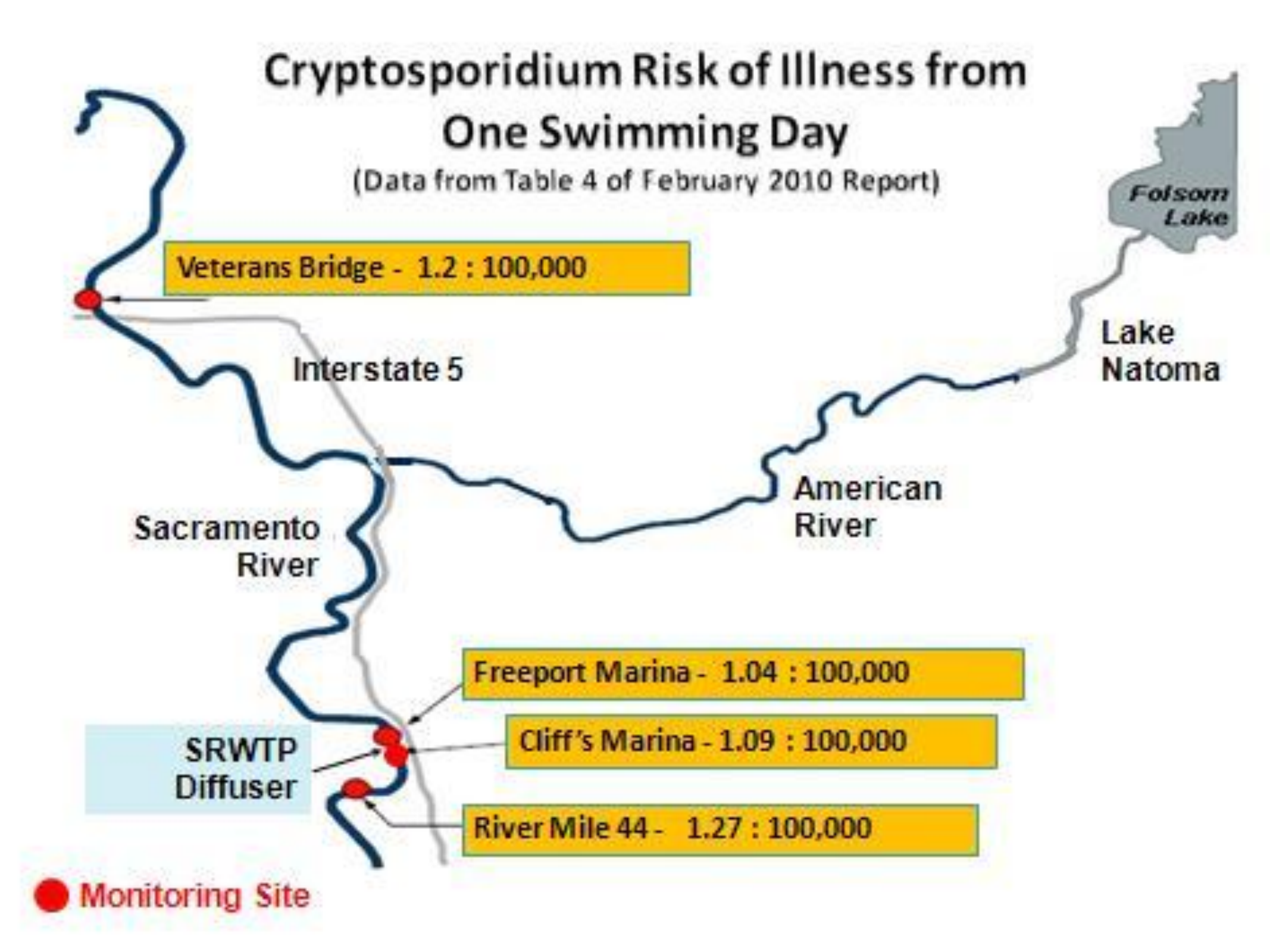
- R5-2010-0019
(pp. F27-F28) (City of Chico)

July 1, 2003 Letter from DPH

"A filtered and disinfected effluent should be required in situations where critical beneficial uses (i.e., food crop irrigation or body contact recreation) are made of the receiving waters **unless a 20:1 dilution ratio (DR) is available. In these circumstances, a secondary, 23 MPN discharge is acceptable** . . . For wastewater discharges into streams that experience tidal influences an instantaneous DR of less than 20:1 is acceptable as long as the average for each day exceeds 20:1."

- Letter from David Spath, Chief, Division of Drinking Water and Environmental Management, to Thomas Pinkos, Executive Officer, Central Valley Regional Water Quality Control Board (July 1, 2003).

Quantitative Risk Assessment


Cryptosporidium Risk of Illness from One Swimming Day
(Data from Table 4 of February 2010 Report)
Folsom Lake
Veterans Bridge - 1.2 : 100,000
Lake Natoma
Interstate 5
American River
Sacramento River
Freeport Marina - 1.04 : 100,000
Cliff's Marina - 1.09 : 100,000
SRWTP Diffuser
River Mile 44 - 1.27 : 100,000
Monitoring Site

Ammonia Limitations

- Science problems
- Regulatory problems

The Science

- “A growing body of evidence….”

Status of recent hypotheses regarding ammonia's potential effects on aquatic life in the Delta

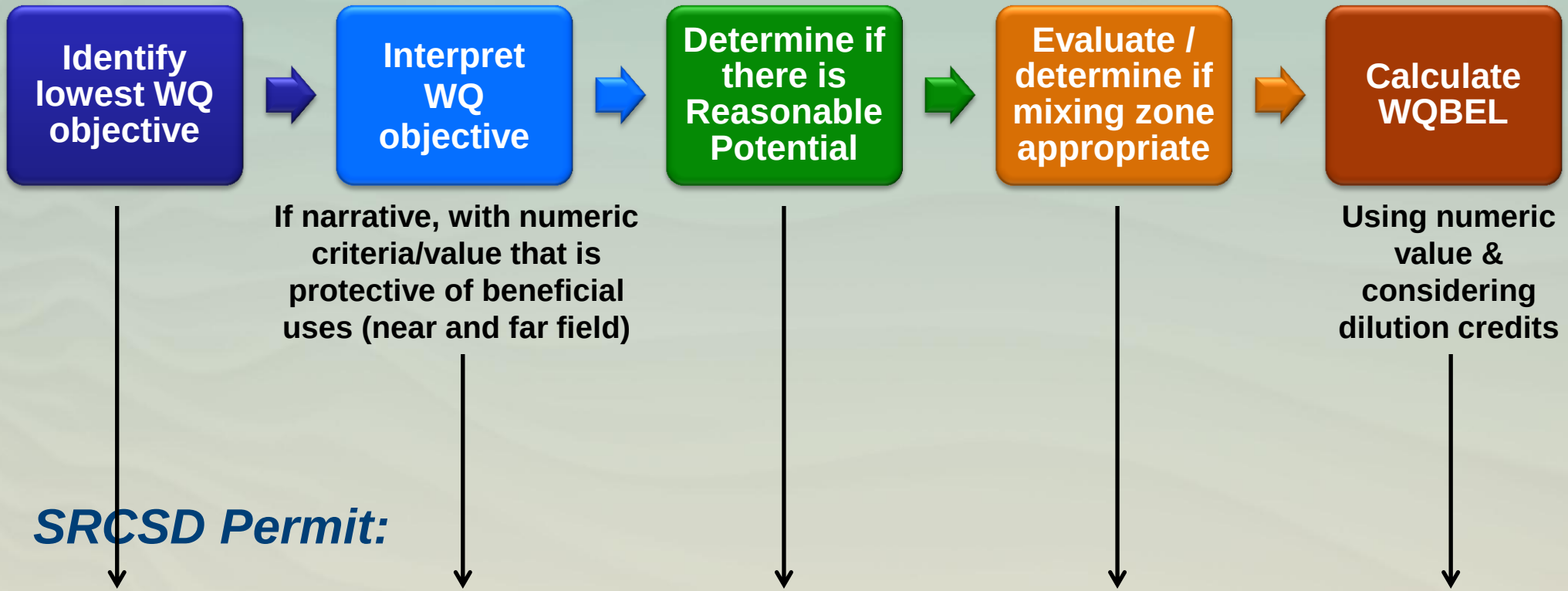
Toxicity	**Hypothesis 1.** Ammonia concentrations exceed current USEPA criteria for acute or chronic toxicity	**Wrong**
	Hypothesis 2. The USEPA acute criterion is not protective of Delta smelt	**Wrong**
	Hypothesis 3. Ammonia concentrations in the Delta are acutely toxic to Delta smelt.	**Wrong**
	Hypothesis 4. Ammonia in the Delta causes chronic toxicity to Delta smelt	**Unlikely** based on appropriate use of USEPA data
	Hypothesis 5. Ammonia in the Delta is toxic to copepods	**Uncertain**. Preliminary test results unreviewed
Food Web	**Hypothesis 6.** Ammonia concentrations or nutrient ratios explain the occurrence of the toxic algae Microcystis in the Delta	**Wrong**
	Hypothesis 7. The food web leading to POD fishes is dependent on diatoms	**Wrong**
	Hypothesis 8. Shifts in nutrient ratios caused the change in phytoplankton composition in the Delta	**Not supported** by experimental data or legitimate statistical analysis
	Hypothesis 9. Ammonia reduces the frequency of diatom blooms in the lower Sacramento River and Suisun Bay	**May occur infrequently** - issue may be moot if Partial Nitrification Alternative is adopted

Regulatory Problems

- **Setting aside any disagreements about the science…**

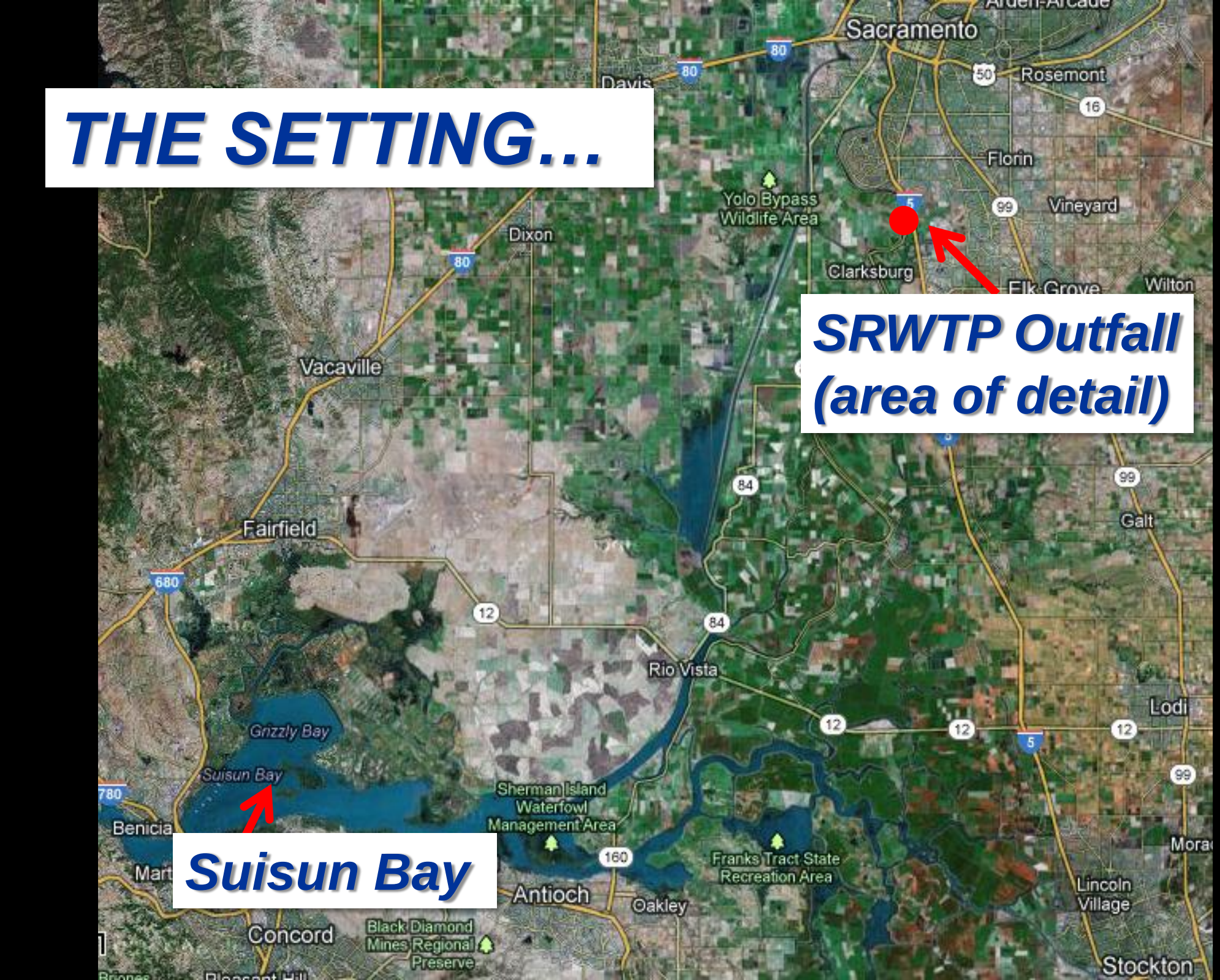
Setting Water Quality Based Effluent Limits

State Implementation Plan:

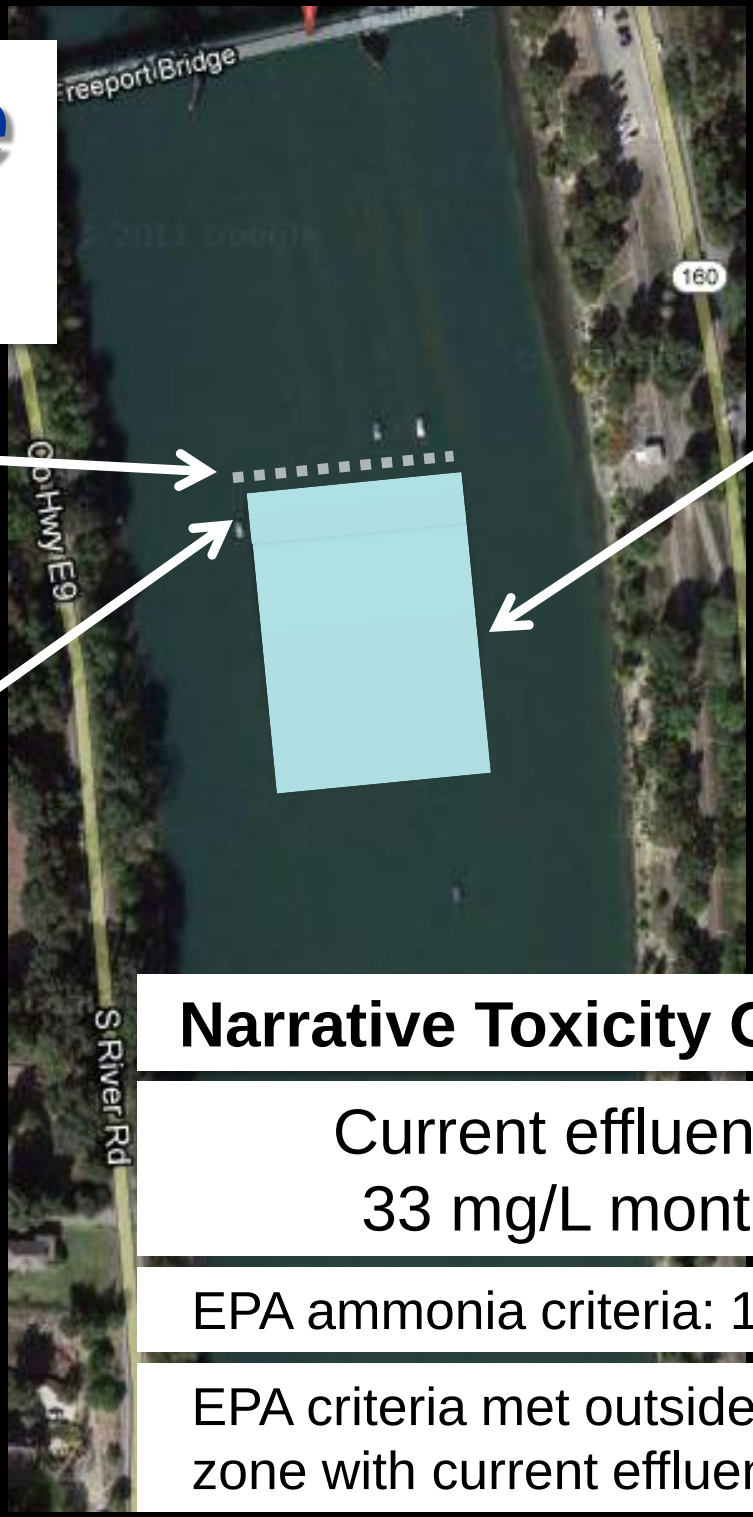


SRCSD Permit:

Narrative toxicity objective	1999 Ammonia Criteria treated as protective and equal to narrative toxicity objective	RWQCB said "yes"	Denied because 1999 Criteria "not protective"	Used 1999 Ammonia Criteria with no dilution


THE SETTING…
SRWTP Outfall
(area of detail)
Suisun Bay
Sacramento
Davis
Rosemont
Florin
Vineyard
Yolo Bypass
Wildlife Area
Dixon
Clarksburg
Elk Grove
Wilton
Vacaville
Fairfield
Galt
Rio Vista
Lodi
Grizzly Bay
Suisun Bay
Sherman Island
Waterfowl
Management Area
Franks Tract State
Recreation Area
Benicia
Antioch
Oakley
Lincoln
Village
Concord
Black Diamond
Mines Regional
Preserve
Stockton
80
50
16
99
5
84
12
680
780
160

Mixing Zone Detail

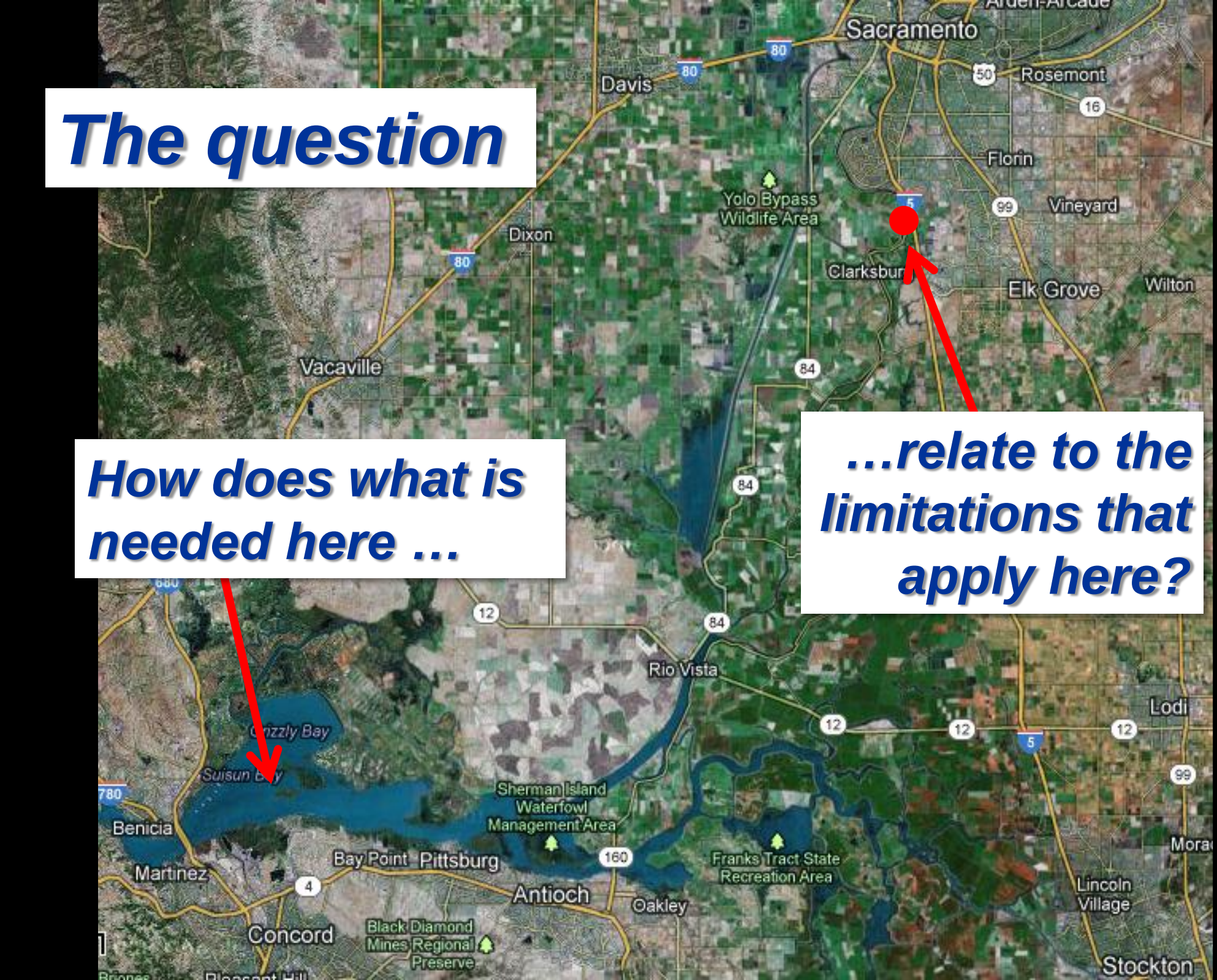


Diffuser
(at bottom of river)

Chronic Mixing Zone ***(****350 feet)*

Acute Mixing Zone ***(****60 feet)*

Narrative Toxicity Objective Applies
Current effluent ammonia = 33 mg/L monthly average
EPA ammonia criteria: 1.8 mg/L monthly ave.
EPA criteria met outside requested mixing zone with current effluent


The question
How does what is needed here …
…relate to the limitations that apply here?
Sacramento
Davis
Rosemont
Florin
Yolo Bypass Wildlife Area
Vineyard
Dixon
Clarksburg
Elk Grove
Wilton
Vacaville
Rio Vista
Lodi
Grizzly Bay
Suisun Bay
Sherman Island Waterfowl Management Area
Benicia
Bay Point
Pittsburg
Martinez
Antioch
Oakley
Franks Tract State Recreation Area
Lincoln Village
Concord
Black Diamond Mines Regional Preserve
Stockton
80
84
12
5
99
50
16
780
4
160

Ammonia

Why 1.8?

Why not 10?

Why not 12?

Closing Remarks

- Realities
- Draft Order should not be adopted
- Filtration is not justified
- Further consideration of ammonia limits should include:
  - Consideration of science
  - Correct regulatory process
- Time to resolve and then comply